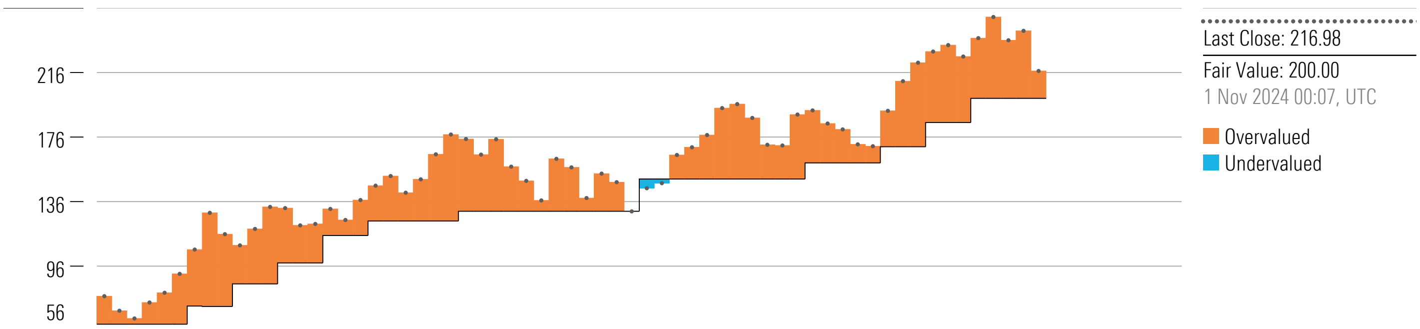
Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 1 of 24

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

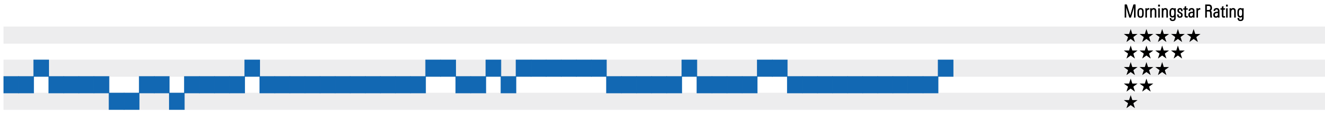
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

Price vs. Fair Value



2020	2021	2022	2023	2024	YTD	
1.56	1.43	1.00	1.20	1.25	1.08	Price/Fair Value
81.85	34.48	-26.32	48.91	30.58	-13.25	Total Return %

Morningstar Rating



Total Return % as of 12 Mar 2025. Last Close as of 12 Mar 2025. Fair Value as of 1 Nov 2024 00:07, UTC.

Contents

Important Disclosure

The conduct of Morningstar's analysts is governed by Code of Ethics/Code of Conduct Policy, Personal Security Trading Policy (or an equivalent of), and Investment Research Policy. For information regarding conflicts of interest, please visit: http://global.morningstar.com/equitydisclosures.

The primary analyst covering this company does not own its stock.

[1]The ESG Risk Rating Assessment is a representation of Sustainalytics' ESG Risk Rating.

Apple: $500 Billion US Investment Is a Tariff-Avoiding Ploy That We Expect to Succeed

Analyst Note William Kerwin, CFA, Senior Equity Analyst, 24 Feb 2025

Apple announced $500 billion in cumulative investment in the US over the next four years, its largest-ever commitment. This includes a new artificial intelligence server manufacturing facility in Texas and increased spending on Apple's semiconductor development and manufacturing in the US.

Why it matters: We believe Apple's spending plan is a direct strategy to earn an exemption from tariffs on imports from China. Close to 70% of iPhones are manufactured in China, leading to a potentially large impact on the firm's financials from tariffs.

- Apple was able to earn exemptions from tariffs under the first Trump administration, and we believe it is on a path to do so again. This could also help the firm avoid potential tariffs on countries besides China.
- Apple's $500 billion commitment shows a focus on generative AI and proprietary semiconductor design expertise. We see Apple's silicon design as highly moaty, most recently exemplified by the new C1 cellular modem, which displaced Qualcomm in the iPhone 16e.

The bottom line: We maintain our $200 fair value estimate for wide-moat Apple, as we maintain our base-case assumption for minimal impacts from tariffs. We see the shares as overvalued. We believe investors need rosy iPhone growth assumptions to justify Apple's valuation.

- In our view, long-term iPhone revenue growth is slowing, with headwinds from a mature smartphone

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 2 of 24

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

Sector	Industry
Technology	Consumer Electronics

Business Description

Apple is among the largest companies in the world, with a broad portfolio of hardware and software products targeted at consumers and businesses. Apple's iPhone makes up a majority of the firm sales, and Apple's other products like Mac, iPad, and Watch are designed around the iPhone as the focal point of an expansive software ecosystem. Apple has progressively worked to add new applications, like streaming video, subscription bundles, and augmented reality. The firm designs its own software and semiconductors while working with subcontractors like Foxconn and TSMC to build its products and chips. Slightly less than half of Apple's sales come directly through its flagship stores, with a majority of sales coming indirectly through partnerships and distribution.

market and higher competition out of China. We believe the current stock price implies close to double-digit medium-term growth, compared with our own forecast in the midsingle digits.

Business Strategy & Outlook William Kerwin, CFA, Senior Equity Analyst, 2 Feb 2024

We believe Apple has cemented a long-term position atop the consumer electronics industry with a focus on a premium ecosystem of tightly integrated hardware, software, and services. We see the flagship iPhone as the linchpin of this ecosystem, from which Apple derives pricing power, switching costs, and a network effect. In our view, every other Apple device and service sees its greatest value from further locking in customers to this walled garden. This approach earns the firm a wide economic moat rating.

We are impressed with Apple's core design prowess, across both hardware and software, that we think is the product of immense cumulative research and development investments. We like Apple's latest push to bring most of its chip development in-house. To us, this gives the firm more opportunity for product customization and a better ability to differentiate. In our view, Apple reduces its own cyclicality compared with other consumer electronics players by melding its semiconductors, hardware, and software together.

Over the medium term, we expect Apple to focus on progressing its internal chip development, artificial intelligence capabilities, and further developing new form factors like its Vision Pro headset. Each one of these initiatives will hedge the firm against disruption risk, in our view. We also anticipate the company will continue returning tremendous amounts of cash back to shareholders, which is supported by its strong balance sheet.

We hold concerns over geopolitical and regulatory risk for Apple but don't see these threatening the firm's moat. Apple's supply chain is heavily concentrated in China and Taiwan, and disruptions to the status quo in these regions could limit its supply. Apple has thus far been adept at managing its complex supply chain and is actively diversifying into new regions. Apple has also been targeted by regulations, particularly out of Europe, which chip away at its differentiation by opening up its App Store and iMessage services. We don't foresee more damaging regulation on the horizon and believe the firm is adequately reinforcing its stickiness with customers by adding new devices and services with which to lock them in.

Bulls Say William Kerwin, CFA, Senior Equity Analyst, 1 Nov 2024

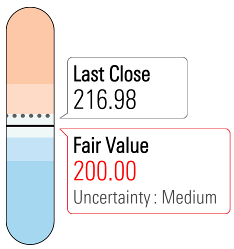
- Apple offers an expansive ecosystem of tightly integrated hardware, software, and services, which locks in customers and generates strong profitability.
- We like Apple's move to in-house chip development, which we think has accelerated its product development and increased its differentiation.
- Apple has a stellar balance sheet and sends great amounts of cash flow back to shareholders.

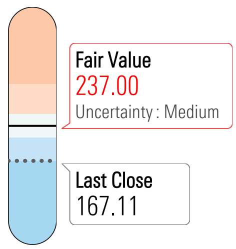
Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

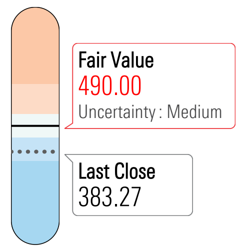
Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

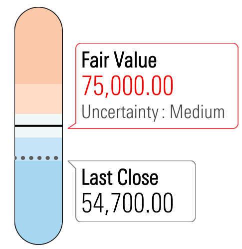
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

Competitors









	Apple Inc AAPL	Alphabet Inc Class A GOOGL	Microsoft Corp MSFT	Samsung Electronics Co Ltd 005930
Economic Moat	Wide	Wide	Wide	Narrow
Currency	USD	USD	USD	KRW
Fair Value	200.00 1 Nov 2024 00:07, UTC	237.00 5 Feb 2025 04:14, UTC	490.00 31 Jul 2024 06:07, UTC	75,000.00 4 Feb 2025 03:26, UTC
1-Star Price	270.00	319.95	661.50	101,250.00
5-Star Price	140.00	165.90	343.00	52,500.00
Assessment	Fairly Valued 13 Mar 2025	Undervalued 13 Mar 2025	Undervalued 13 Mar 2025	Undervalued 13 Mar 2025
Morningstar Rating	★★★13 Mar 2025 21:29, UTC	★★★★13 Mar 2025 21:29, UTC	★★★★13 Mar 2025 21:26, UTC	★★★★13 Mar 2025 12:08, UTC
Analyst	William Kerwin, Senior Equity Analyst	Malik Ahmed Khan, Equity Analyst	Dan Romanoff, Senior Equity Analyst	Kazunori Ito, Director
Capital Allocation	Exemplary	Exemplary	Exemplary	Standard
Price/Fair Value	1.08	0.69	0.77	0.73
Price/Sales	8.39	5.94	10.94	1.24
Price/Book	48.89	6.28	9.41	0.95
Price/Earning	34.44	20.78	30.59	11.06
Dividend Yield	0.46%	0.48%	0.82%	2.63%
Market Cap	3,149.83 Bil	1,984.04 Bil	2,815.77 Bil	368,438.01 Bil
52-Week Range	164.08—260.10	138.99—207.05	376.91—468.35	49,900.00—88,800.00
Investment Style	Large Blend	Large Value	Large Blend	Large Blend

Bears Say William Kerwin, CFA, Senior Equity Analyst, 1 Nov 2024

- Apple is prone to consumer spending and preferences, which creates cyclicality and opens the firm up to disruption.
- Apple's supply chain is highly concentrated in China and Taiwan, which opens up the firm to geopolitical risk. Attempts to diversify into other regions may pressure profitability or efficiency.
- Regulators have a keen eye on Apple, and recent regulations have chipped away at parts of Apple's sticky ecosystem.

Economic Moat William Kerwin, CFA, Senior Equity Analyst, 2 Feb 2024

We assign Apple a wide economic moat rating, stemming from customer switching costs, intangible assets, and a network effect. In our view, Apple's iOS ecosystem extends far-reaching, sticky tendrils into customers' wallets, entrenching customers with software capabilities and integration across disparate devices like the iPhone, Mac, iPad, Apple Watch, and more. We also see immense design prowess at Apple, most impressively from deep integration of hardware, software, and semiconductors to create best-of-breed products. Finally, we see a virtuous cycle between Apple's affluent customer base and vast ecosystem of developer partners. These moat sources elicit great profitability and returns on invested capital. In our view, Apple can leverage these moat sources into continued economic profits over the next 20 years, more likely than not.

Apple's most important moat source to us arises from the switching costs for its ecosystem of software, driven by iOS on the iPhone. Apple enjoys terrific customer retention and satisfaction, even despite pricing its products at a significant premium to its competition. First, Apple offers software capabilities that are only available to iPhone users: iMessage messaging and FaceTime calling, AirDrop sharing, Apple Pay digital wallet, and location sharing are among the most used. Apple's products become even more entrenched when a customer adopts two or more. Users that combine the iPhone with a Mac, an iPad, and/or an Apple Watch are offered more features that in turn create a higher cost to switching. Among these, we highlight iMessages shared across devices, health data shared securely between the Watch and iPhone, seamless transfer of media, copy and paste between devices, and complementary app interfaces across multiple devices.

In our view, Apple's ability to widen its portfolio of user devices helps augment its existing switching costs. The Apple Watch and AirPods are good recent examples of new products we see raising stickiness of customers. A Watch user can answer calls, read and respond to messages, and keep a tab on notifications, but must have an iPhone to use these capabilities. AirPods connect with marked ease to Apple devices but have to be manually re-paired each use if joined to a non-Apple device. As customers use more point devices, we believe they are less likely to leave Apple's ecosystem. We view Apple's nascent push into augmented and virtual reality (AR and VR) as the next step in this strategy. The firm's Vision Pro headset offers yet another auxiliary form factor that relies on the iPhone as the focal computing point.

Furthermore, we see Apple's adept ability to introduce and succeed with new form factors (like smartwatches and VR headsets) as defending the firm from disruption risk. After Apple itself disrupted the mobile phone market by creating the modern smartphone, we believe it is critical for the firm to stay on the cutting edge and stave off disruptive threats to its own portfolio. We believe developing auxiliary products integrated with the iPhone is doing just that.

Beyond locking customers into a software ecosystem, we believe Apple's design expertise represents significant intangible assets that allow the firm to deliver top tier performance for its devices across hardware, software, and semiconductors. We see an enormous research and development budget totaling in the tens of billions of dollars enabling and maintaining this design prowess.

Apple boasts impressive semiconductor design capabilities with which it augments the performance of its iPhone, Mac, iPad, and Watch offerings. We see chips as the highest-value component of consumer electronics. In designing its own chips, Apple is able to customize its specific devices for performance, power efficiency, and available features. Its A-series chips for the iPhone integrate neural engines for artificial intelligence, or AI, capabilities like facial recognition and are optimized for power efficiency to deliver best-in-class battery life. Its M-series chips for the Mac offer more memory than standardized PC chips from Intel or AMD, helping enable quicker compute and graphics performance. Owning its chip design also allows Apple to prioritize security. It embeds Secure Enclave in every Mac chip, which is a totally encrypted and physically separated part of the chip that protects biometric data and encryption keys.

By owning its chip design, Apple tightens the integration between its hardware devices and its sticky software ecosystem. Apple's custom chip families allow for common platforms across devices and new software features that further rope in customers. For example, Apple's focus on featuring significant neural engines on its chips allow for AI applications on devices, including facial recognition, voice assistance (Siri), live transcription, autocorrect, and highly adaptable software suggestions based on user preferences and history. We believe the common platform across chips for iPhone, Mac, iPad, and Watch also aid third-party app developers to create more integrated experiences for customers. Offering a better platform for developers leads to more apps designed for Apple devices, more features on third-party apps across devices, and a stickier proposition to customers, in our view.

Apple's chip capabilities are bolstered by a robust relationship with Taiwan Semiconductor, or TSMC, the largest foundry in the world. In our view, this relationship enables Apple to pursue more powerful and more efficient chips ahead of its competitors. Apple's iPhone is typically the first product to feature the newest process technology from TSMC, like the iPhone 15 Pro in 2023 being the first to feature 3-nanometer chips. Additionally, Apple pays TSMC for dedicated capacity, enabling Apple to be guaranteed a certain level of supply to meet demand for new iPhones, Macs, and the like.

We see Apple's chip design and software design prowess as impressive when taken separately but even more valuable in tandem. We believe the firm stands to benefit from quicker time-to-market for new features across both hardware and software by developing the two together and specified for its own devices. This compares with taking more general chips from the likes of Intel and being reliant on another firm's development for your own software ambitions (as Apple used to be for its Mac lineup before introducing the M-series chips). This integrated approach also stands out against Apple's primary smartphone competitor, Samsung, which owns its hardware assembly but outsources its chips and software to Qualcomm and Google (Android), respectively.

Apple focuses on the premium ends of its markets with best-of-breed devices that it sells at significant premiums. Customers have shown a consistent desire to pay up for this performance, generating unit market share gains for Apple even as its prices rise compared with competitors. Apple's share gains have been broad-based, across both developed and emerging markets (like China and India), consumers and enterprises, and every major product line, including iPhone, Mac, and iPad. We believe further share gains are in Apple's future, particularly as it sees the strongest preference among younger users.

Apple's moat is reinforced with a network effect between its large, committed user base and expansive ecosystem of application developers. We believe that more developers and more talented developers are drawn to Apple's large install base, while consumers are drawn to the wide selection of applications to which they gain access by purchasing an Apple device. In our view, this is accentuated by a richer base of Apple users, compared with those of competing PC or mobile vendors that spend more on apps and generate more developer profits. We also think that Apple's unified software ecosystem across iPhone, Mac, iPad, Watch, and more is an attractive proposition for developers. A developer can more easily gain multiple footholds in a user with tight integration and overlap between Apple's products and OSes, compared with designing disparate interfaces for an Android phone and Windows PC, for example. We think this network effect can be enhanced with more touchpoints in the Apple ecosystem, like the Vision Pro, that plug right into the existing development frameworks. We don't believe Apple's network precludes the existence of a network effect for a competing app store, like Google Play, but see Apple's rich network augmenting its user experience and supplementing its switching costs.

Apple's ability to deliver cutting-edge products with tightly integrated hardware and software, along with its software ecosystem's ability to lock in customers, results in impressive profit margins. On top of 45% gross margins, which are impressive for a consumer hardware provider, Apple's asset-light model with outsourced manufacturing generates robust returns on invested capital, to the tune of roughly 50%. In our view, Apple's sticky ecosystem and phenomenal engineering capabilities will enable it to continue earning strong economic profits over the next 20 years.

Fair Value and Profit Drivers William Kerwin, CFA, Senior Equity Analyst, 1 Nov 2024

Our fair value estimate for Apple is $200 per share. Our valuation implies a fiscal 2025 price/earnings multiple of 27 times, a fiscal 2025 enterprise value/revenue multiple of 7 times, and a fiscal 2025 free cash flow yield of 4%. Against our estimate of fiscal 2026 earnings, our valuation implies a price/earnings multiple of 23 times.

We project 7% compound annual revenue growth for Apple through fiscal 2029. The iPhone will be the greatest contributor to revenue over our forecast, and we project 6% growth for iPhone revenue over the next five years. We expect this to be driven primarily by unit sales growth, with modest pricing increases. We think pricing increases will be driven primarily by a mix shift toward the more premium Pro models.

Services are Apple's next biggest revenue contributor over our forecast, and we forecast 10% services

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

revenue growth. Services are driven in large part by revenue from Google for its status as the default search engine on the Safari browser as well as Apple's cut of App Store revenues. We expect solid growth in Google revenue but see a more mixed outlook for App Store results, where we forecast growth in overall app revenue but progressively lower cuts going toward Apple as the result of regulatory pressures. Elsewhere, we see mostly double-digit growth across revenue from Apple Music, Apple TV+, Apple Pay, AppleCare, and Apple's other services.

We see the highest growth opportunity in Apple's wearables revenue, to the tune of 13% through fiscal 2029. We see high-single-digit growth for Apple Watch and AirPods revenue, with both products continuing to gain share. We expect strong, double-digit growth for Apple's nascent Vision Pro, but expect this to remain a small minority of total revenue. We project roughly $4 billion in Vision Pro revenue in fiscal 2029.

Across Apple's other primary hardware products, Mac and iPad, we see midcycle growth in the low-single digits. We expect Mac to see stronger short-term revenue from a cyclical rebound in consumer PC spending as well as existing Mac customers refreshing Intel-based notebooks to the new M-series lineup.

We forecast gross margins to rise to 49% in fiscal 2029, up from 46% in fiscal 2024. We believe Apple can see margin expansion from a higher mix of higher-margin hardware, like iPhone Pro models, and services. We also expect Apple to continue using R&D to trim costs as well as develop new features, especially by creating more cost-efficient semiconductors and bringing more chip development in-house.

Operating margins rise almost exclusively due to gross margin expansion in our forecast, reaching 35% in fiscal 2029 from 32% in fiscal 2024. We anticipate strong growth in research and development expenditures, which are key to Apple's value and moat. We think the firm can eke out modest leverage on other operating expenses.

Risk and Uncertainty William Kerwin, CFA, Senior Equity Analyst, 1 Nov 2024

We assign Apple with a Medium Uncertainty Rating. We see the firm's greatest risk as its reliance on consumer spending, for which there is great competition and cyclicality. Apple is at constant risk of disruption, just as the iPhone disrupted BlackBerry in the budding smartphone market. The iPhone could be unseated by a new device or "superapp." We view the firm defending against this risk, however, by introducing new form factors (like a watch and an augmented reality headset) and selling an ecosystem of software and services on top of hardware.

We also see geopolitical risk arising from Apple's supply chain. It is heavily dependent on Foxconn and Taiwan Semiconductor, or TSMC, for its assembly and chip production, respectively. The majority of

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

iPhones are produced at a megafactory in China by Foxconn, and the majority of Apple chips are produced in Taiwan by TSMC. If there were a souring of relations between the US and China, or if China threatened Taiwan, Apple could see a severe hit to its supply. Additionally, the Chinese government has recommended government officials not conduct business on iPhones, which presents a current and potential future risk to Apple's revenue in China.

Apple also faces regulatory scrutiny. The European Union has enacted regulations forcing Apple to offer third-party app stores, adopt open messaging standards, and restricting Apple from gatekeeping its repair materials to third parties. Similarly, there are ongoing antitrust cases in the US that could affect Apple's walled garden ecosystem. All these help to chip away at the firm's differentiation, but we believe the firm is offsetting these by adding new stick points in customers, like new services and devices.

Finally, we see low environmental, social, and governance risk for Apple. The firm has committed to full carbon neutrality by 2030, and we believe it will achieve its goal. The potential future loss of talented human capital could be another risk on this front.

Capital Allocation William Kerwin, CFA, Senior Equity Analyst, 1 Nov 2024

We assign Apple an Exemplary capital allocation rating, with Apple's investments as the primary driver to our rating. We see Apple's ability to develop updated and brand new technology internally as exceptional. Beyond iterations of products like the iPhone and Mac, Apple's internal chip and software development are particularly impressive to us. We believe Apple's semiconductors are strong, and the firm's ability to tailor chips to specific devices creates compelling value to customers. Apple's chips allow the firm to prioritize artificial intelligence applications and other proprietary software and features that generic chips from the likes of Intel may not.

We also believe Apple has invested in new products at the right time, seemingly perfecting the strategy of being a fast and premium follower. The Apple Watch is a prime example, and one where Apple now holds the largest share of its market. New products also create another touch point by which Apple can lock in customers and raise its switching costs, reinforcing its wide moat. In our view, these also hedge against disruption risk by expanding Apple's ecosystem and creating prowess in new form factors that may eventually succeed the smartphone. We see the Vision Pro as the newest example of this strategy and one that will also leverage Apple's silicon expertise.

On top of strong investments, Apple boasts a robust balance sheet and uses it to reward shareholders. Apple's cash generation is fantastic, and we like its goal of becoming net cash-neutral, which should help avoid the opportunity cost of holding significant amounts of cash. We also like the firm's dividend and buyback program, a combination that routinely sends all of Apple's free cash flow back to shareholders.

Underpinning Apple's capital allocation strategy, we are pleased with the firm's board of directors and

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 9 of 24

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

Tim Cook as a chief executive. We believe Cook has been instrumental in pivoting Apple into an ecosystem company and has made savvy bets on new form factors, semiconductor design, and services. We like his compensation structure that offers a relatively low, flat salary with the majority of his pay coming from incentive-based compensation. Apple's board is made up of blue-chip current and former executives across industries. The board has good expertise across finance, biotechnology, and consumer products, which likely informs Apple's strategy in existing and new markets.

Analyst Notes Archive

Apple: iPhone 16e Meets Our Expectations, and We See C1 Modem as Impressive William Kerwin, CFA,Senior Equity Analyst,19 Feb 2025

Apple announced the iPhone 16e, which is an updated budget-friendly model. The 16e features Apple's suite of AI features, Apple Intelligence, and Apple's first-ever self-designed cellular modem, dubbed C1. It includes better battery life, display, camera, and processing versus the last iPhone SE. Why it matters: We see the 16e as a natural iteration of the iPhone lineup, and we'd been expecting Apple to update its budget-friendly iPhone model. We believe it presents strong value versus the higher-priced flagship iPhone 16 and 16 Pro lineups. The introduction of the C1 modem is the biggest news to us. An Apple modem is the latest example of the firm's ability to vertically integrate, particularly with silicon, which is a key tenet of our margin expansion thesis. We expect Apple modems to penetrate flagship iPhones in a few years. The incorporation of Apple Intelligence shows Apple's strategy to get artificial intelligence into as many consumers' hands as possible. AI requires more advanced chip content, and including it in a budget model shows Apple's focus on unit sales and a sticky software ecosystem, in our view. The bottom line: We maintain our $200 valuation for Apple shares and make no changes to our long-term iPhone and overall Apple forecasts. We continue to see shares as overvalued and reflecting overly optimistic expectations for the impact of generative AI software on device sales. We expect 5% compound annual growth for iPhone revenue through fiscal 2029, including higher growth in fiscal 2026 with more AI features. We believe investors would have to assume closer to double-digit iPhone revenue growth over the same period to justify Apple's Feb. 19 valuation.

Apple Earnings: Soft Start to Fiscal 2025 Aligns With Our Thesis for Slowing iPhone Growth William Kerwin, CFA,Senior Equity Analyst,31 Jan 2025

Apple's December-quarter revenue rose by 4% year over year to $124.3 billion. IPhone revenue declined 1% year over year to $69.1 billion, and services revenue rose 14% year over year to $26.3 billion. March-quarter revenue guidance calls for low to mid-single-digit year-over-year growth. Why it matters: The firm's tepid results and guidance align with our expectations for a soft iPhone growth cycle over the next two years, with the integration of generative artificial intelligence features only modestly increasing device sales. Apple Intelligence doesn't appear to be lifting iPhone 16 unit sales in a material way. We point to a delayed and protracted rollout of features as reasons for a mild initial impact. In our view, the most attractive feature set of Apple Intelligence is still not released. China remained a growth headwind, with revenue declining for the sixth straight quarter. China is a key piece of our thesis for slowing long-term iPhone growth, with Apple losing share to revitalized domestic competitors. The bottom line: We maintain our $200 fair value estimate for wide-moat Apple. We believe our long-term thesis for slowing iPhone growth is bearing out. Despite our favorable view of the company and its fundamentals, we see Apple's valuation implying overly rosy expectations for long-term growth. IPhone revenue has grown at a 7% average annual rate in the past 10 years, but we believe through-cycle iPhone revenue growth is slowing and forecast 5% average annual growth through fiscal 2029. Core to our thesis are China headwinds and a mature smartphone market. Shares rose 3% after-hours, which we see as an overreaction to March-quarter revenue guidance. In our view, low to mid-single-digit year-over-year growth represents a mild iPhone cycle and fails to justify the current valuation Apple holds today.

AI DeepSeek Coverage Summary: Maintaining Our Fair Values; Pullback Was Healthy Eric Compton, CFA,Director,28 Jan 2025

We have consolidated our recent DeepSeek-related coverage in this note. Artificial intelligence affects companies across much of our coverage, including semiconductors, cloud infrastructure, software, utilities, and energy.Many of the firms under our coverage with an “AI premium” were already trading in 1- to 2-star territory. Our valuations were already positioned for a pullback of this nature, as we were having a hard time justifying the increases in revenue implied by these valuations. We view the current pullback as healthy, even as we remain positive on the long-term potential of AI. We have maintained our fair value estimates across the affected companies.Our thesis, after the release of DeepSeek, is that we were going to see instances of sleeker, more-efficient AI models that would not rely on massive clusters of AI GPUs and related hardware. This was the only way the ecosystem was going to successfully address large numbers of use cases in the long term. We believe that lower costs—making AI cheaper, therefore more economical—increase the number of use cases it is viable for, and as a result, should increase demand. This is the same path the PC revolution followed, with computing power becoming cheap enough that millions of individuals could use it at an affordable cost. The same happened with the cloud and SaaS revolution thereafter, where the incremental cost of adding users was close to zero. We believe a future where AI was both prohibitively expensive and also “taking over the world” was not likely. As such, we view the advancements made by DeepSeek as promising and healthy for the overall ecosystem.For more in-depth coverage on specific industries, please refer to our notes on Nvidia, the hyperscalers, semiconductor equipment companies, TSMC, Apple and networking, utilities, European utilities, HVAC, and industrials.

DeepSeek R1 Model Doesn't Alter Our Valuations or Forecasts for Technology Hardware Stocks

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 11 of 24

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

William Kerwin, CFA,Senior Equity Analyst,27 Jan 2025

Many technology hardware stocks under our coverage plunged in Monday trading after reports of DeepSeek's R1 generative artificial intelligence model out of China offering performance parity to top US models at a much lower training cost. The iShares Semiconductor ETF was down 8% in midday trading.Why it matters: In our view, the market selloff implies fears of weaker future generative AI infrastructure investment resulting from cheaper models. We are less pessimistic and expect strong generative AI investment to continue. We've expected generative AI models to become slimmer and more efficient. We expect US model builders to develop more efficient models, but overall hardware spending will continue to rise, particularly with a serious competitive alternative out of China. In the longer term, we foresee a commoditization of AI models that shouldn't diminish investment in hardware infrastructure. Lower-cost models should accelerate the path to financial returns for model builders, but that they will continue to invest heavily in hardware to support them.The bottom line: We maintain our fair value estimates and moat ratings for our technology hardware coverage, including Apple, Broadcom, Marvell Technology, Arista Networks, and Micron Technology. The DeepSeek news and market selloff don't alter our long-term forecasts today. We don't expect a cut to infrastructure investment in the short term and believe US and European model builders will continue to invest heavily in developing larger and higher-performing models. Demand still exceeds chip supply, and we don't expect that to change due to the DeepSeek news. We believe the selloff largely reflects more uncertainty being priced into AI-exposed stocks, which we believe to be reasonable. We believe AI investment will continue to rise rapidly, but that more bullish forecasts might have underestimated efficiency gains in new models.

Apple: Reports of Modem Development Fit With Our Long-Term Margin Expansion Thesis William Kerwin, CFA,Senior Equity Analyst,6 Dec 2024

We maintain our fair value estimates for Apple and Broadcom after Bloomberg reported that Apple would be rolling out its own cellular modem as early as 2025. We aren't surprised by Apple's modem ambitions, and they fit with our longer-term expectations for the firm to wrap more chip content under its own design umbrella. Apple's vertical integration strategy is a key tenet of our gross margin expansion thesis on the firm, and helps it to reduce price inflation. We like the strategy, as reported, for a staged rollout beginning in the lower-value iPhone SE before eventually moving up to the premium iPhone models. We don't see immediate risk to chip supplier Broadcom from this report. We see Broadcom's FBAR chips as among the most differentiated pieces in Apple's products, and one of the hardest for Apple to displace. We continue to see both Apple and Broadcom as overvalued today.Bloomberg reported on Dec. 6, 2024, that Apple would begin rolling out self-designed internal baseband chips, or modems, in 2025. These would begin to displace Qualcomm content in iPhones and other Apple products, starting with the lower-end iPhone SE. Bloomberg also reported that other radio

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 12 of 24

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

frequency, or RF, parts from the likes of Qorvo might also be displaced alongside a core modem chip. According to the report, Apple would seek to build confidence in its technology in the lower end SE models before establishing technology leadership and displacing Qualcomm in premium iPhone models around 2027.For Apple, we see this as a continuation of ongoing vertical integration of chip content, with the most notable recent example being the M-series chips for Macs and iPads to displace Intel chips in 2020. Vertical integration has been a key driver of 500 basis points of product gross margin expansion since 2019 for Apple, and we expect nearly 200 basis points of expansion over the next five years, driven in part by integrating Apple-designed modems.

Apple Earnings: Our Valuation Rises to Reflect Stronger Long-Term Growth, but Less of an AI Impact

William Kerwin, CFA,Senior Equity Analyst,1 Nov 2024

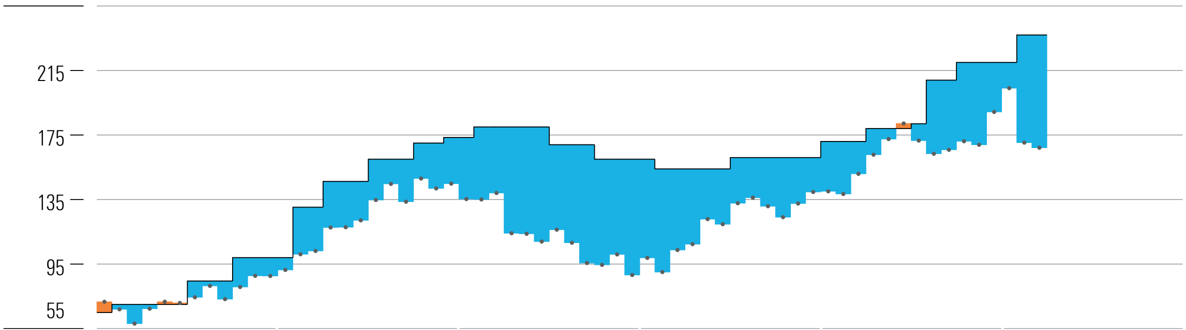
We raise our fair value estimate for wide-moat Apple to $200 from $185 as we raise our longer-term growth expectations. We've also revised down our short-term forecast for iPhone revenue to reflect less of an impact from artificial intelligence on unit sales over the next two years. We believe Apple Intelligence will spur a return to mid-single-digit growth for iPhone revenue, but we believe the impact will be drawn out over the next two fiscal years. In the longer term, we expect iPhone unit sales and Apple's services segment to drive solid growth and for margin expansion to help drive double-digit earnings growth over the next five years.Nevertheless, we find shares overvalued. We believe iPhone revenue growth, Apple's largest driver, is slowing throughout cycles in a mature smartphone market and with growth headwinds out of China. We expect only a moderate slowdown in good growth, but we believe the expectations priced into the stock are lofty and reflect the overexuberance surrounding AI.September-quarter revenue rose 6% year over year and 11% sequentially, in line with our expectations. IPhone revenue rose 6% year over year, which reflects a positive inflection and which we attribute in part to excitement around the iPhone 16 lineup, which had 10 days of sales in the quarter. Services remained Apple's highest growth area, rising 12% year over year. These combined to make up 75% of revenue.December-quarter revenue guidance was below our expectations, with management expecting low to mid-single-digit year-over-year growth. We've lowered our iPhone revenue forecast for fiscal 2025 to reflect a slower ramp in iPhone 16 unit sales. We believe the release of Apple Intelligence will drive consumers to buy new iPhones. Still, a staggered release schedule will dampen what we previously expected to be a surge in demand in fiscal 2025. We forecast stronger growth in fiscal 2026 behind a more developed and widely available AI offering.

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Competitors Price vs. Fair Value

Alphabet Inc Class A GOOGL

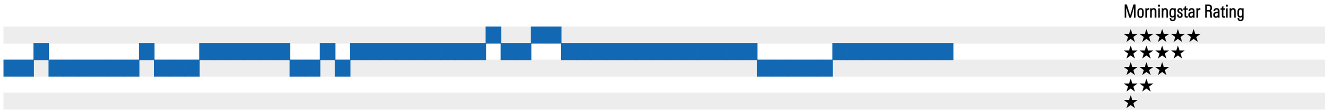


Fair Value: 237.00
5 Feb 2025 04:14, UTC

Last Close: 167.11
Overvalued
Undervalued

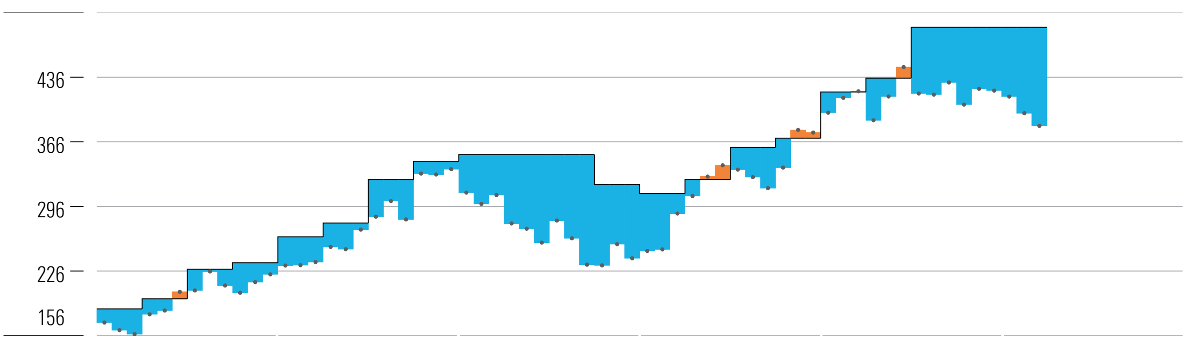
2020	2021	2022	2023	2024	YTD	
0.89	0.83	0.55	0.87	0.86	0.69	Price/Fair Value
30.85	65.30	-39.09	58.32	35.94	-11.62	Total Return %

Morningstar Rating



Total Return % as of 12 Mar 2025. Last Close as of 12 Mar 2025. Fair Value as of 5 Feb 2025 04:14, UTC.

Microsoft Corp MSFT

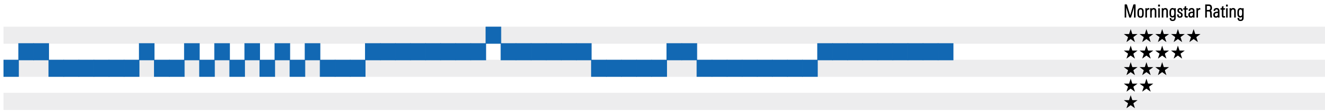


Fair Value: 490.00
31 Jul 2024 06:07, UTC

Last Close: 383.27
Overvalued
Undervalued

2020	2021	2022	2023	2024	YTD	
0.95	0.97	0.75	1.02	0.86	0.77	Price/Fair Value
42.37	52.24	-27.94	57.96	12.91	-8.87	Total Return %

Morningstar Rating



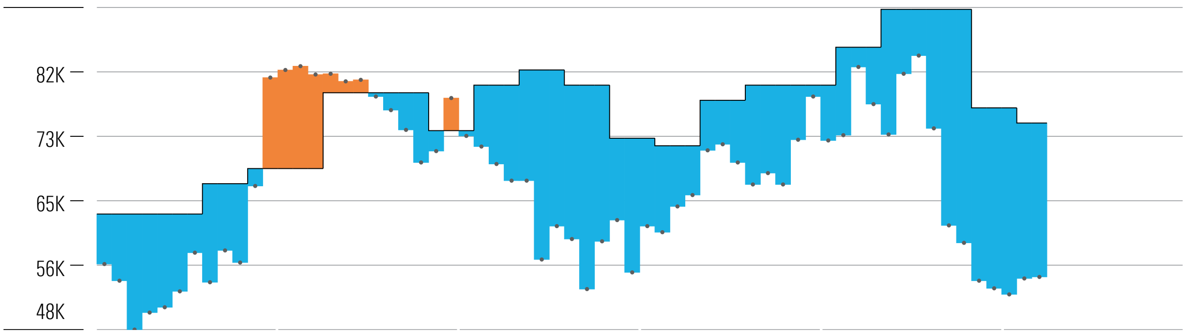
Total Return % as of 12 Mar 2025. Last Close as of 12 Mar 2025. Fair Value as of 31 Jul 2024 06:07, UTC.

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Competitors Price vs. Fair Value

Samsung Electronics Co Ltd 005930



Fair Value: 75,000.00
4 Feb 2025 03:26, UTC

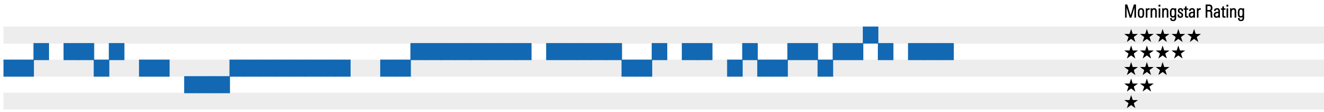
Last Close: 54,700.00

Overvalued

Undervalued

	2020	2021	2022	2023	2024	YTD
Price/Fair Value	1.17	1.06	0.76	0.98	0.69	0.73
Total Return %	50.04	-1.75	-27.60	44.56	-30.39	2.82

Morningstar Rating



Total Return % as of 13 Mar 2025. Last Close as of 13 Mar 2025. Fair Value as of 4 Feb 2025 03:26, UTC.

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

Morningstar Valuation Model Summary

Financials as of 03 Feb 2025	Actual			Forecast				
Fiscal Year, ends 30 Sep	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Revenue (USD Mil)	394,328	383,285	391,035	407,945	438,998	468,149	499,063	531,217
Operating Income (USD Mil)	119,437	114,301	123,216	131,427	143,664	155,947	169,742	183,601
EBITDA (USD Mil)	130,541	125,820	134,661	142,506	154,634	166,740	180,355	194,017
Adjusted EBITDA (USD Mil)	130,541	125,820	134,661	142,506	154,634	166,740	180,355	194,017
Net Income (USD Mil)	99,803	96,995	93,736	110,497	120,678	130,996	142,583	154,225
Adjusted Net Income (USD Mil)	99,803	96,995	103,982	110,497	120,678	130,996	142,583	154,225
Free Cash Flow To The Firm (USD Mil)	112,255	95,760	119,719	112,488	126,742	135,872	147,199	158,796
Weighted Average Diluted Shares Outstanding (Bil)	16	16	15	15	14	14	13	13
Earnings Per Share (Diluted) (USD)	6.11	6.13	6.08	7.36	8.33	9.43	10.73	12.15
Adjusted Earnings Per Share (Diluted) (USD)	6.11	6.13	6.75	7.36	8.33	9.43	10.73	12.15
Dividends Per Share (USD)	0.90	0.94	0.98	1.02	1.10	1.18	1.26	1.34

Margins & Returns as of 03 Feb 2025		Actual			Forecast					
	3 Year Avg	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**5 Year Avg**
Operating Margin %	30.5	30.3	29.8	31.5	32.2	32.7	33.3	34.0	34.6	33.4
EBITDA Margin %	—	33.1	32.8	34.4	34.9	35.2	35.6	36.1	36.5	—
Adjusted EBITDA Margin %	—	33.1	32.8	34.4	34.9	35.2	35.6	36.1	36.5	35.7
Net Margin %	24.9	25.3	25.3	24.0	27.1	27.5	28.0	28.6	29.0	28.0
Adjusted Net Margin %	25.7	25.3	25.3	26.6	27.1	27.5	28.0	28.6	29.0	28.0
Free Cash Flow To The Firm Margin %	28.0	28.5	25.0	30.6	27.6	28.9	29.0	29.5	29.9	29.0

Growth & Ratios as of 03 Feb 2025		Actual			Forecast					
	3 Year CAGR	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**5 Year CAGR**
Revenue Growth %	2.3	7.8	-2.8	2.0	4.3	7.6	6.6	6.6	6.4	6.3
Operating Income Growth %	4.2	9.6	-4.3	7.8	6.7	9.3	8.6	8.9	8.2	8.3
EBITDA Growth %	4.0	8.6	-3.6	7.0	5.8	8.5	7.8	8.2	7.6	7.6
Adjusted EBITDA Growth %	3.9	8.6	-3.6	7.0	5.8	8.5	7.8	8.2	7.6	7.6
Earnings Per Share Growth %	2.7	8.9	0.3	-0.8	21.1	13.2	13.2	13.8	13.2	14.8
Adjusted Earnings Per Share Growth %	2.7	8.9	0.3	10.0	9.1	13.2	13.2	13.8	13.2	14.8

Valuation as of 03 Feb 2025	Actual			Forecast				
	2022	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Price/Earning	22.6	27.9	34.5	28.5	25.2	22.2	19.5	17.3
Price/Sales	5.6	7.0	9.0	7.7	7.2	6.7	6.3	5.9
Price/Book	44.6	43.6	63.0	61.7	115.2	-262.1	-60.1	-32.3
Price/Cash Flow	—	—	—	—	—	—	—	—
EV/EBITDA	17.4	21.6	26.4	22.4	20.6	19.1	17.7	16.5
EV/EBIT	19.0	23.8	28.9	24.3	22.2	20.5	18.8	17.4
Dividend Yield %	0.7	0.5	0.4	0.5	0.5	0.6	0.6	0.6
Dividend Payout %	14.7	15.3	14.5	13.9	13.2	12.5	11.7	11.0
Free Cash Flow Yield %	—	—	—	—	—	—	—	—

Operating Performance / Profitability as of 03 Feb 2025	Actual			Forecast				
Fiscal Year, ends 30 Sep	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
ROA %	28.3	27.5	25.7	31.0	35.2	41.3	47.9	54.8
ROE %	197.0	156.1	164.6	216.7	458.7	-1179.8	-307.4	-187.1
ROIC %	100.4	89.8	86.6	87.7	89.8	99.4	112.5	122.4

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

Financial Leverage (Reporting Currency)	Actual			Forecast				
Fiscal Year, ends 30 Sep	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Debt/Capital %	5.6	4.0	2.9	2.8	2.5	2.2	2.1	2.0
Assets/Equity	7.0	5.7	6.4	7.0	13.0	-28.6	-6.4	-3.4
Net Debt/EBITDA	0.6	0.4	0.3	0.4	0.3	0.3	0.3	0.3
Total Debt/EBITDA	1.0	0.9	0.8	0.6	0.5	0.5	0.4	0.4
EBITDA/ Net Interest Expense	390.8	222.7	-500.6	260.0	—	—	—	—

Forecast Revisions as of 3 Feb 2025	2025		2026		2027	
Prior data as of 30 Jan 2025	**Current**	**Prior**	**Current**	**Prior**	**Current**	**Prior**
Fair Value Estimate Change (Trading Currency)	200.00	199.96	—	—	—	—
Revenue (USD Mil)	407,945	407,945	438,998	438,998	468,149	468,149
Operating Income (USD Mil)	131,427	131,427	143,664	143,664	155,947	155,947
EBITDA (USD Mil)	142,506	142,506	154,634	154,634	166,740	166,740
Net Income (USD Mil)	110,497	110,497	120,678	120,678	130,996	130,996
Earnings Per Share (Diluted) (USD)	7.36	7.36	8.33	8.33	9.43	9.43
Adjusted Earnings Per Share (Diluted) (USD)	7.36	7.36	8.33	8.33	9.43	9.43
Dividends Per Share (USD)	1.02	1.02	1.10	1.10	1.18	1.18

Key Valuation Drivers as of 03 Feb 2025	
Cost of Equity %	9.0
Pre-Tax Cost of Debt %	5.5
Weighted Average Cost of Capital %	8.9
Long-Run Tax Rate %	16.0
Stage II EBI Growth Rate %	8.0
Stage II Investment Rate %	2.0
Perpetuity Year	20

Additional estimates and scenarios available for download at https://pitchbook.com/.

Discounted Cash Flow Valuation as of 03 Feb 2025	**USD Mil**
Present Value Stage I	423,177
Present Value Stage II	1,410,340
Present Value Stage III	1,106,187
Total Firm Value	**2,939,705**
Cash and Equivalents	29,943
Debt	96,662
Other Adjustments	0
Equity Value	**2,872,986**
Projected Diluted Shares	15
Fair Value per Share (USD)	**200.00**

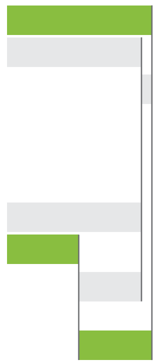
Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

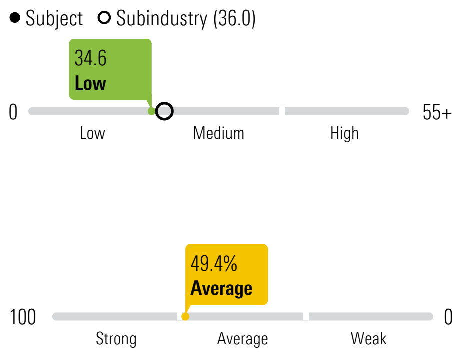
Apple Inc AAPL ★★★ 13 Mar 2025 21:29, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
216.98 USD 12 Mar 2025	200.00 USD 1 Nov 2024 00:07, UTC	1.08	3.15 USD Tril 13 Mar 2025	Wide	Large Blend	Medium	Exemplary	5 Mar 2025 06:00, UTC

ESG Risk Rating Breakdown

Exposure	
Company Exposure[1]	34.6
– Manageable Risk	32.1
Unmanageable Risk[2]	**2.5**
Management	
Manageable Risk	32.1
– Managed Risk[3]	15.9
Management Gap[4]	**16.3**
Overall Unmanaged Risk	**18.7**





- Exposure represents a company's vulnerability to ESG risks driven by their business model
- Exposure is assessed at the Subindustry level and then specified at the company level
- Scoring ranges from 0-55+ with categories of low, medium, and high-risk exposure

- Management measures a company's ability to manage ESG risks through its commitments and actions
- Management assesses a company's efficiency on ESG programs, practices, and policies
- Management score ranges from 0-100% showing how much manageable risk a company is managing

ESG Risk Rating

ESG Risk Ratings measure the degree to which a company's value is impacted by environmental, social, and governance risks, by evaluating the company's ability to manage the ESG risks it faces.

1. A company's Exposure to material ESG issues 2. Unmanageable Risk refers to risks that are inherent to a particular business model that cannot be managed by programs or initiatives 3. Managed Risk = Manageable Risk multiplied by a Management score of 49.4% 4. Management Gap assesses risks that are not managed, but are considered manageable 5. ESG Risk Rating Assessment = Overall Unmanaged Risk = Management Gap plus Unmanageable Risk

ESG Risk Rating Assessment[5]

ESG Risk Rating is of Mar 05, 2025. Highest Controversy Level is as of Mar 08, 2025. Sustainalytics Subindustry: Technology Hardware. Sustainalytics provides Morningstar with company ESG ratings and metrics on a monthly basis and as such, the ratings in Morningstar may not necessarily reflect current Sustainalytics' scores for the company. For the most up to date rating and more information, please visit: sustainalytics.com/esg-ratings/.

Peer Analysis 05 Mar 2025

Peers are selected from the company's Sustainalytics-defined Subindustry and are displayed based on the closest market cap values

Company Name	Exposure			Management			ESG Risk Rating		
Apple Inc	34.6 | Low	0	55+	49.4 | Average	100	0	18.7 | Low	0	40+
Alphabet Inc	44.1 | Medium	0	55+	46.8 | Average	100	0	24.9 | Medium	0	40+
Microsoft Corp	33.6 | Low	0	55+	63.8 | Strong	100	0	13.7 | Low	0	40+
Samsung Electronics Co Ltd	38.0 | Medium	0	55+	65.5 | Strong	100	0	14.9 | Low	0	40+
Broadcom Inc	42.0 | Medium	0	55+	58.7 | Strong	100	0	19.2 | Low	0	40+

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Appendix

Historical Morningstar Rating

Apple Inc AAPL 13 Mar 2025 21:29, UTC

Dec 2025 —	Nov 2025 —	Oct 2025 —	Sep 2025 —	Aug 2025 —	Jul 2025 —	Jun 2025 —	May 2025 —	Apr 2025 —	Mar 2025 ★★★	Feb 2025 ★★	Jan 2025 ★★
Dec 2024 ★★	Nov 2024 ★★	Oct 2024 ★★	Sep 2024 ★★	Aug 2024 ★★	Jul 2024 ★★	Jun 2024 ★★	May 2024 ★★	Apr 2024 ★★★	Mar 2024 ★★★	Feb 2024 ★★	Jan 2024 ★★
Dec 2023 ★★	Nov 2023 ★★	Oct 2023 ★★★	Sep 2023 ★★	Aug 2023 ★★	Jul 2023 ★★	Jun 2023 ★★	May 2023 ★★	Apr 2023 ★★★	Mar 2023 ★★★	Feb 2023 ★★★	Jan 2023 ★★★
Dec 2022 ★★★	Nov 2022 ★★★	Oct 2022 ★★	Sep 2022 ★★★	Aug 2022 ★★	Jul 2022 ★★	Jun 2022 ★★★	May 2022 ★★★	Apr 2022 ★★	Mar 2022 ★★	Feb 2022 ★★	Jan 2022 ★★
Dec 2021 ★★	Nov 2021 ★★	Oct 2021 ★★	Sep 2021 ★★	Aug 2021 ★★	Jul 2021 ★★	Jun 2021 ★★	May 2021 ★★★	Apr 2021 ★★	Mar 2021 ★★	Feb 2021 ★★	Jan 2021 ★★
Dec 2020 ★	Nov 2020 ★★	Oct 2020 ★★	Sep 2020 ★	Aug 2020 ★	Jul 2020 ★★	Jun 2020 ★★	May 2020 ★★	Apr 2020 ★★	Mar 2020 ★★★	Feb 2020 ★★	Jan 2020 ★★

Alphabet Inc Class A GOOGL 13 Mar 2025 21:29, UTC

Dec 2025 —	Nov 2025 —	Oct 2025 —	Sep 2025 —	Aug 2025 —	Jul 2025 —	Jun 2025 —	May 2025 —	Apr 2025 —	Mar 2025 ★★★★	Feb 2025 ★★★★	Jan 2025 ★★★★
Dec 2024 ★★★★	Nov 2024 ★★★★	Oct 2024 ★★★★	Sep 2024 ★★★★	Aug 2024 ★★★★	Jul 2024 ★★★	Jun 2024 ★★★	May 2024 ★★★	Apr 2024 ★★★	Mar 2024 ★★★	Feb 2024 ★★★★	Jan 2024 ★★★★
Dec 2023 ★★★★	Nov 2023 ★★★★	Oct 2023 ★★★★	Sep 2023 ★★★★	Aug 2023 ★★★★	Jul 2023 ★★★★	Jun 2023 ★★★★	May 2023 ★★★★	Apr 2023 ★★★★	Mar 2023 ★★★★	Feb 2023 ★★★★	Jan 2023 ★★★★★
Dec 2022 ★★★★★	Nov 2022 ★★★★	Oct 2022 ★★★★	Sep 2022 ★★★★★	Aug 2022 ★★★★	Jul 2022 ★★★★	Jun 2022 ★★★★	May 2022 ★★★★	Apr 2022 ★★★★	Mar 2022 ★★★★	Feb 2022 ★★★★	Jan 2022 ★★★★
Dec 2021 ★★★★	Nov 2021 ★★★	Oct 2021 ★★★★	Sep 2021 ★★★	Aug 2021 ★★★	Jul 2021 ★★★★	Jun 2021 ★★★★	May 2021 ★★★★	Apr 2021 ★★★★	Mar 2021 ★★★★	Feb 2021 ★★★★	Jan 2021 ★★★
Dec 2020 ★★★	Nov 2020 ★★★	Oct 2020 ★★★★	Sep 2020 ★★★	Aug 2020 ★★★	Jul 2020 ★★★	Jun 2020 ★★★	May 2020 ★★★	Apr 2020 ★★★	Mar 2020 ★★★★	Feb 2020 ★★★	Jan 2020 ★★★

Microsoft Corp MSFT 13 Mar 2025 21:26, UTC

Dec 2025 —	Nov 2025 —	Oct 2025 —	Sep 2025 —	Aug 2025 —	Jul 2025 —	Jun 2025 —	May 2025 —	Apr 2025 —	Mar 2025 ★★★★	Feb 2025 ★★★★	Jan 2025 ★★★★
Dec 2024 ★★★★	Nov 2024 ★★★★	Oct 2024 ★★★★	Sep 2024 ★★★★	Aug 2024 ★★★★	Jul 2024 ★★★★	Jun 2024 ★★★	May 2024 ★★★	Apr 2024 ★★★	Mar 2024 ★★★	Feb 2024 ★★★	Jan 2024 ★★★
Dec 2023 ★★★	Nov 2023 ★★★	Oct 2023 ★★★★	Sep 2023 ★★★★	Aug 2023 ★★★	Jul 2023 ★★★	Jun 2023 ★★★	May 2023 ★★★	Apr 2023 ★★★	Mar 2023 ★★★★	Feb 2023 ★★★★	Jan 2023 ★★★★
Dec 2022 ★★★★	Nov 2022 ★★★★	Oct 2022 ★★★★	Sep 2022 ★★★★★	Aug 2022 ★★★★	Jul 2022 ★★★★	Jun 2022 ★★★★	May 2022 ★★★★	Apr 2022 ★★★★	Mar 2022 ★★★★	Feb 2022 ★★★★	Jan 2022 ★★★★
Dec 2021 ★★★	Nov 2021 ★★★	Oct 2021 ★★★	Sep 2021 ★★★★	Aug 2021 ★★★	Jul 2021 ★★★★	Jun 2021 ★★★	May 2021 ★★★★	Apr 2021 ★★★	Mar 2021 ★★★★	Feb 2021 ★★★	Jan 2021 ★★★★
Dec 2020 ★★★	Nov 2020 ★★★	Oct 2020 ★★★★	Sep 2020 ★★★	Aug 2020 ★★★	Jul 2020 ★★★	Jun 2020 ★★★	May 2020 ★★★	Apr 2020 ★★★	Mar 2020 ★★★★	Feb 2020 ★★★★	Jan 2020 ★★★

Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Samsung Electronics Co Ltd 005930 13 Mar 2025 12:08, UTC

Dec 2025	Nov 2025	Oct 2025	Sep 2025	Aug 2025	Jul 2025	Jun 2025	May 2025	Apr 2025	Mar 2025	Feb 2025	Jan 2025
—	—	—	—	—	—	—	—	—	★★★★	★★★★	★★★★
Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
—	★★★★	★★★★★	★★★★	★★★★	★★★	★★★★	★★★★	★★★	★★★	★★★★	★★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
—	★★★★	★★★★	—	★★★★	★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
—	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★	★★★	—
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
—	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★	★★	★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
—	★★★	★★★	—	★★★★	★★★	★★★★	★★★★	—	★★★★	★★★	★★★

Research Methodology for Valuing Companies

Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, indepth competitive advantage analysis, and a variety of other analytical tools to augment this process. Moreover, we think analyzing valuation through discounted cash flows presents a better lens for viewing cyclical companies, high-growth firms, businesses with finite lives (e.g., mines), or companies expected to generate negative earnings over the next few years. That said, we don't dismiss multiples altogether but rather use them as supporting cross-checks for our DCF-based fair value estimates. We also acknowledge that DCF models offer their own challenges (including a potential proliferation of estimated inputs and the possibility that the method may miss shortterm market-price movements), but we believe these negatives are mitigated by deep analysis and our longterm approach.

Morningstar's equity research group ("we," "our") believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at a discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk adjusted discount to their fair values, whereas 1-star stocks trade at premiums to their intrinsic worth.

Four key components drive the Morningstar rating: (1) our assessment of the firm's economic moat, (2) our estimate of the stock's fair value, (3) our uncertainty around that fair value estimate and (4) the current market price. This process ultimately culminates in our singlepoint star rating.

1. Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as returns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality, no-moat companies will see their normalized returns gravitate toward the firm's cost of capital more quickly than companies with moats.

When considering a company's moat, we also assess whether there is a substantial threat of value destruction, stemming from risks related to ESG, industry disruption, financial health, or other idiosyncratic issues. In this context, a risk is considered potentially value destructive if its occurrence would eliminate a firm's economic profit on a cumulative or midcycle basis. If we deem the probability of occurrence sufficiently high, we would not characterize the company as possessing an economic moat.

2. Estimated Fair Value

Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in workingcapital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBI) and the net new investment (NNI) to derive our annual free cash flow forecast.

Stage II: Fade

The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested ("RONIC")—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBI over the period, a normalized investment rate, average return on new invested capital (RONIC), and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until a perpetuity value is calculated. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

Stage III: Perpetuity

Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with estimated WACC.

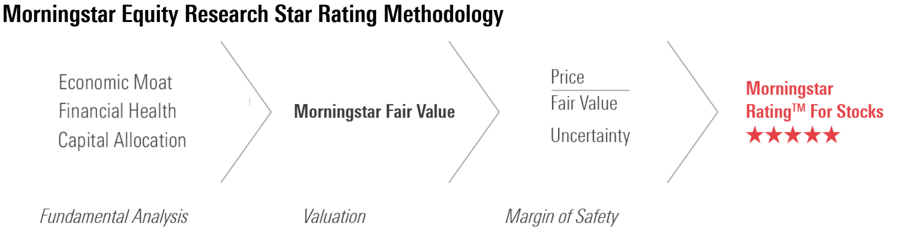
Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term, market-value weights.

3. Uncertainty Around That Fair Value Estimate

Morningstar's Uncertainty Rating is designed to capture the range of potential outcomes for a company's intrinsic value. This rating is used to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating is aimed at identifying the confidence we should have in assigning a fair value estimate for a given stock.

Our Uncertainty Rating is meant to take into account anything that can increase the potential dispersion of future outcomes for the intrinsic value of a company, and any-

Morningstar Equity Research Star Rating Methodology



Morningstar Equity Analyst Report | Report as of 13 Mar 2025 23:12, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Research Methodology for Valuing Companies

thing that can affect our ability to accurately predict these outcomes. The rating begins with a suggested rating produced by a quantitative process based on the trailing 12-month standard deviation of daily stock returns. An analyst overlay is then applied, with analysts using the suggested rating, historical rating data, and their own knowledge of the company to inform them as they make the final Uncertainty Rating decision. Ultimately, the rating decision rests with the analyst. Analysts take into account many characteristics when making their final decision, including cyclical factors, operational and financial factors such as leverage, company-specific events, ESG risks, and anything else that might increase the potential dispersion of future outcomes and our ability to estimate those outcomes.

Our recommended margin of safety—the discount to fair value demanded before we'd recommend buying or selling the stock—widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the potential dispersion of outcomes, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the Uncertainty Rating provides guidance in portfolio construction based on risk tolerance.

Our Uncertainty Ratings are: Low, Medium, High, Very High, and Extreme.

Qualitative Analysis Uncertainty Ratings	Margin of Safety ★★★★★Rating	 ★Rating
Low	20% Discount	25% Premium
Medium	30% Discount	35% Premium
High	40% Discount	55% Premium
Very High	50% Discount	75% Premium
Extreme	75% Discount	300% Premium

Our uncertainty rating is based on the interquartile range, or the middle 50% of potential outcomes, covering the 25th percentile–75th percentile. This means that when a stock hits 5 stars, we expect there is a 75% chance that the intrinsic value of that stock lies above the current market price. Similarly, when a stock hits 1 star, we expect there is a 75% chance that the intrinsic value of that stock lies below the current market price.

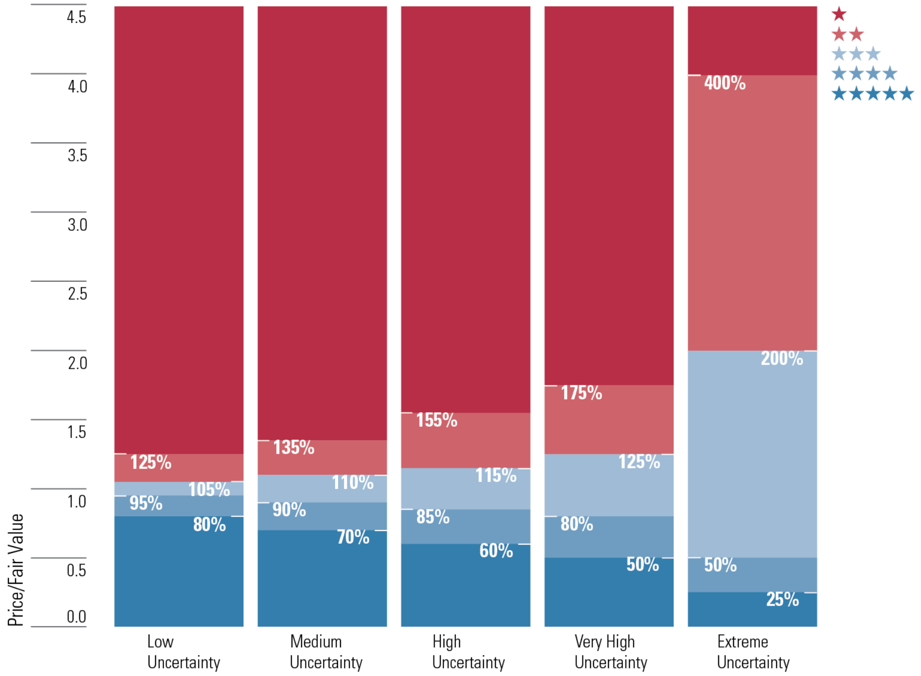
4. Market Price

The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

For more details about our methodology, please go to https://shareholders.morningstar.com

Morningstar Star Rating for Stocks

Morningstar Equity Research Star Rating Methodology



Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically re-calculated at the market close on every day the market on which the stock is listed is open. Our analysts keep close tabs on the companies they follow, and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true the market price will converge on our fair value estimate over time generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

★★★★★ We believe appreciation beyond a fair risk adjusted return is highly likely over a multiyear time frame. Scenario analysis developed by our analysts indicates that the current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

★★★★ We believe appreciation beyond a fair risk-adjusted return is likely.

★★★ Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

★★ We believe investors are likely to receive a less than fair risk-adjusted return.

★ Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. Scenario analysis by our analysts indicates that the market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Other Definitions

Last Price: Price of the stock as of the close of the market of the last trading day before date of the report.

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments, and shareholder distributions. Analysts consider compan-

Research Methodology for Valuing Companies

ies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exemplary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

Capital Allocation (or Stewardship) analysis published prior to Dec. 9, 2020, was determined using a different process. Beyond investment strategy, financial leverage, and dividend and share buyback policies, analysts also considered execution, compensation, related party transactions, and accounting practices in the rating.

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments, and shareholder distributions. Analysts consider companies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exemplary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

Capital Allocation (or Stewardship) analysis published prior to Dec. 9, 2020, was determined using a different process. Beyond investment strategy, financial leverage, and dividend and share buyback policies, analysts also considered execution, compensation, related party transactions, and accounting practices in the rating.

Sustainalytics ESG Risk Rating Assessment: The ESG Risk Rating Assessment is provided by Sustainalytics; a Morningstar company.

Sustainalytics' ESG Risk Ratings measure the degree to which company's economic value at risk is driven by environment, social and governance (ESG) factors.

Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risks represented as a quantitative score. Unmanaged Risk is measured on an open-ended scale starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

Based on their quantitative scores, companies are grouped into one of five Risk Categories (negligible, low, medium, high, severe). These risk categories are absolute, meaning that a 'high risk' assessment reflects a comparable degree of unmanaged ESG risk across all subindustries covered.

The ESG Risk Rating Assessment is a visual representation of Sustainalytics ESG Risk Categories on a 1 to 5 scale. Companies with Negligible Risk = 5 Globes, Low Risk = 4, Medium Risk = 3 Globes, High Risk = 2 Globes, Severe Risk = 1 Globe. For more information, please visit sustainalytics.com/esg-ratings/

Ratings should not be used as the sole basis in evaluating a company or security. Ratings involve unknown risks and uncertainties which may cause our expectations not to occur or to differ significantly from what was expected and should not be considered an offer or solicitation to buy or sell a security.

Risk Warning

Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. Morningstar's Uncertainty Rating serves as a useful data point with respect to sensitivity analysis of the assumptions used in our determining a fair value price.

General Disclosure

Unless otherwise provided in a separate agreement, recipients accessing this report may only use it in the country in which the Morningstar distributor is based. Unless stated otherwise, the original distributor of the report is Morningstar Research Services LLC, a U.S.A. domiciled financial institution.

This Report is for informational purposes, should not be the sole piece of information used in making an investment decision, and has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. This publication is intended to provide information to assist investors in making their own investment decisions, not to provide investment advice to any specific investor. Therefore, investments discussed herein may not be suitable for all investors; investors must exercise their own independent judgment as to the suitability of such investments and recommendations in the light of their own investment objectives, experience, taxation status and financial position. Morningstar encourages Report recipients to read all relevant issue documents (e.g., prospectus) pertaining to the security concerned, including without limitation, information relevant to its investment objectives, risks, and costs before making an investment decision and when deemed necessary, to seek the advice of a financial, legal, tax, and/or accounting professional. The information, data, analyses and opinions presented herein are not warranted to be accurate, correct, complete or timely. Unless otherwise provided in a separate agreement, neither Morningstar, Inc. or the Equity Research Group represents that the report contents meet all of the presentation and/or disclosure standards applicable in the jurisdiction the recipient is located.

Except as otherwise required by law or provided for in a separate agreement, the analyst, Morningstar, Inc. and the Equity Research Group and their officers, directors and employees shall not be responsible or liable for any trading decisions, damages or other losses resulting from, or related to, the information, data, analyses or opinions within the report.

The Report and its contents are not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Morningstar, Inc. or its affiliates to any registration or licensing requirements in such jurisdiction.

Where this report is made available in a language other than English and in the case of inconsistencies between the English and translated versions of the report, the English version will control and supersede any ambiguities associated with any part or section of a report that has been issued in a foreign language. Neither the analyst, Morningstar, Inc., or the Equity Research Group guarantees the accuracy of the translations.

This report may be distributed in certain localities, countries and/or jurisdictions ("Territories") by independent third parties or independent intermediaries and/or distributors ("Distributors"). Such Distributors are not acting as agents or representatives of the analyst, Morningstar, Inc. or the Equity Research Group. In Territories where a Distributor distributes our report, the Distributor is solely responsible for complying with all applicable regulations, laws, rules, circulars, codes and guidelines established by local and/or regional regulatory bodies, including laws in

Research Methodology for Valuing Companies

connection with the distribution third-party research reports.

Conflicts of Interest

- No interests are held by the analyst with respect to the security subject of this investment research report.
- Morningstar, Inc. may hold a long position in the security subject of this investment research report that exceeds 0.5% of the total issued share capital of the security. To determine if such is the case, please click http://msi.morningstar.com and http://mdi.morningstar.com
- Analysts' compensation is derived from Morningstar, Inc.'s overall earnings and consists of salary, bonus and in some cases restricted stock.
- Neither Morningstar, Inc. or the Equity Research Group receives commissions for providing research nor do they charge companies to be rated.
- Morningstar's overall earnings are generated in part by the activities of the Investment Management and Research groups, and other affiliates, who provide services to product issuers.
- Morningstar employees may not pursue business and employment opportunities outside Morningstar within the investment industry (including but not limited to, working as a financial planner, an investment professional or investment professional representative, a broker-dealer or broker-dealer agent, a financial writer, reporter, or analyst) without the approval of Morningstar's Legal and if applicable, Compliance teams.
- Neither Morningstar, Inc. or the Equity Research Group is a market maker or a liquidity provider of the security noted within this report.
- Neither Morningstar, Inc. or the Equity Research Group has been a lead manager or co-lead manager over the previous 12-months of any publicly disclosed offer of financial instruments of the issuer.
- Morningstar, Inc.'s investment management group does have arrangements with financial institutions to provide portfolio management/investment advice some of which an analyst may issue investment research reports on. However, analysts do not have authority over Morningstar's investment management group's business arrangements nor allow employees from the investment management group to participate or influence the analysis or opinion prepared by them.
- Morningstar, Inc. is a publicly traded company (Ticker Symbol: MORN) and thus a financial institution the security of which is the subject of this report may own more than 5% of Morningstar, Inc.'s total outstanding shares. Please access Morningstar, Inc.'s proxy statement, "Security Ownership of Certain Beneficial Owners and Management" section https://shareholders.morningstar.com/investor-relations/financials/sec-filings/default.aspx
- Morningstar, Inc. may provide the product issuer or its related entities with services or products for a fee and on an arms' length basis including software products and licenses, research and consulting services, data services, licenses to republish our ratings and research in their promotional material, event sponsorship and website advertising.

Further information on Morningstar, Inc.'s conflict of interest policies is available from http://global.morningstar.com/equitydisclosures . Also, please note analysts are subject to the CFA Institute's Code of Ethics and Standards of Professional Conduct.

Risk Warning Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security's investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. For investments in foreign markets there are further risks, generally based on exchange rate changes or changes in political and social conditions.

For more information about Morningstar's methodologies, please visit global.morningstar.com/equitydisclosures

For a list of securities which the Equity Research Group currently covers and provides written analysis on please contact your local Morningstar office. In addition, for historical analysis of securities covered, including their fair value estimate, please contact your local office.

For recipients in Australia: This Report has been issued and distributed in Australia by Morningstar Australasia Pty Ltd (ABN: 95 090 665 544; ASFL: 240892). Morningstar Australasia Pty Ltd is the provider of the general advice ('the Service') and takes responsibility for the production of this report. The Service is provided through the research of investment products.

To the extent the Report contains general advice it has been prepared without reference to an investor's objectives, financial situation or needs. Investors should consider the advice in light of these matters and, if applicable, the relevant Product Disclosure Statement before making any decision to invest. Refer to our Financial Services Guide (FSG) for more information at http://www.morningstar.com.au/fsg.pdf

For recipients in New Zealand: This report has been issued and distributed by Morningstar Australasia Pty Ltd and/or Morningstar Research Ltd (together 'Morningstar'). This report has been prepared and is intended for distribution in New Zealand to wholesale clients only and has not been prepared for use by New Zealand retail clients (as those terms are defined in the Financial Markets Conduct Act 2013).The information, views and any recommendations in this material are provided for general information purposes only, and solely relate to the companies and investment opportunities specified within. Our reports do not take into account any particular investor's financial situation, objectives or appetite for risk, meaning no representation may be implied as to the suitability of any financial product mentioned for any particular investor. We recommend seeking financial advice before making any investment decision.

For recipients in Hong Kong: The Report is distributed by Morningstar Investment Management Asia Limited, which is regulated by the Hong Kong Securities and Futures Commission to provide services to professional investors only. Neither Morningstar Investment Management Asia Limited, nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information unless expressly agreed to by Morningstar Investment Management Asia Limited.

For recipients in India: This investment research is issued by Morningstar Investment Adviser India Private Limited. Morningstar Investment Adviser India Private Limited is registered with SEBI as a Portfolio Manager (registration number INP000006156) and as a Research Entity (registration number INH000008686). Morningstar Investment Adviser India Private Limited has not been the subject of any disciplinary action by SEBI or any other legal/regulatory body. Morningstar Investment Adviser India Private Limited is a wholly owned subsidiary of Morningstar Investment Management LLC. In India, Morningstar Investment Adviser India Private Limited has one associate, Morningstar India Private Limited, which provides data-related services, financial data analysis, and software development. The research analyst has not served as an officer, director, or employee of the fund company within the last 12 months, nor have they or their associates engaged in market-making activity for the fund company.The ESG-related information, methodologies, tool, ratings, data and opinions contained or reflected herein are not directed to or intended for use or distribution to India-based clients or users and their distribution to Indian resident individuals or entities is not permitted, and Morningstar/Sustainalytics accepts no responsibility or liability whatsoever for the actions of third parties in this respect.

*The Conflicts of Interest disclosure above also applies to relatives and associates of Manager Research Analysts in India # The Conflicts of Interest disclosure above also applies to associates of Manager Research Analysts in India. The terms and conditions on which Morningstar In-

Research Methodology for Valuing Companies

vestment Adviser India Private Limited offers Investment Research to clients, varies from client to client, and are detailed in the respective client agreement.

For recipients in Japan: The Report is distributed by Ibbotson Associates Japan, Inc., which is regulated by Financial Services Agency, for informational purposes only. Neither Ibbotson Associates Japan, Inc., nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information.

For recipients in Singapore: For Institutional Investor audiences only. The Report is distributed by Morningstar Investment Adviser Singapore Pte. Limited, which is licensed by the Monetary Authority of Singapore to provide financial advisory services in Singapore. Morningstar Investment Adviser Singapore Pte. Limited is the entity responsible for the creation and distribution of the research services described in this presentation. Investors should consult a financial adviser regarding the suitability of any investment product, taking into account their specific investment objectives, financial situation or particular needs, before making any investment decisions.

For recipients in Korea: The report is distributed by Morningstar Korea Ltd., which has filed to the Financial Services Committee, for informational purposes only. Neither Morningstar Korea Ltd. nor its representatives are acting or will be deemed to be acting as an investment advisor to any recipients of this information.